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21.10.92 Bulletin 92/43(71) Applicant: **GENERAL ELECTRIC COMPANY**
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Services Co. Inc. Essex House 12/13 Essex
Street
London WC2R 3AA(GB)(54) **Process for preparing polycrystalline cubic boron nitride and resulting product.**

(57) The present invention is directed to an high pressure/high temperature process for making polycrystalline cubic boron nitride particles and compacts from graphite boron nitride in the substantial absence of bulk catalytically-active material. The inventive process modulates the HP/HT conditions of the process and comprises incorporating into said GBN, non-BN atoms or clusters thereof in an amount for at least lowering the pressure required for making said polycrystalline CBN in the absence of said atoms or clusters thereof. The presence of non-BN atoms/clusters or foreign atoms can be termed "doping" and should be contrasted to the formation of a "composite". Doping of GBN with foreign atoms in accordance with the present invention involves the atomic level dispersion of foreign atoms independent of concentration. Thus, for present purposes, it is the size of foreign atoms and their distribution that determines whether a doped GBN material for processing in accordance with the present invention has been made or whether a conventional composite has been made. A composite, it will be appreciated, refers to the bulk addition of foreign material to GBN. In this regard, it should be understood that the same percentage of foreign atoms may be defined as suitable for producing a "composite" conventionally, but that this definition refers to macroscopic (particle size)

mixtures; whereas, the same percentage may be termed a "doped" mixture for present purposes if the foreign atoms are present in an atomic level dispersion of atoms or clusters thereof. The resulting CBN product forms yet another aspect of the present invention.

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DOCUMENTS CONSIDERED TO BE RELEVANT

DOCUMENTS CONSIDERED TO BE RELEVANT			PAGE1
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
P,X D,E	EP-A-0 368 069 (GENERAL ELECTRIC COMPANY) * the whole document * & US-A-5 043 120 ---	1-32	C04B35/58 C01B21/064
X	WORLD PATENTS INDEX LATEST Week 8629, Derwent Publications Ltd., London, GB; AN 86-185340 & JP-A-61 117 106 (SHOWA DENKO KK) 4 June 1986 * abstract * ---	1-4, 9-15, 20-25, 30-32	
X	WORLD PATENTS INDEX LATEST Week 8319, Derwent Publications Ltd., London, GB; AN 83-45315K & JP-A-58 055 314 (KOMATSU KK) 1 April 1983 * abstract * ---	1-4, 9-15, 20-25, 30-32	
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A	BE-A-777 213 (VSESOJUZNY NAUCHNO-ISSLEDOVATELSKY INSTITUT ABRAZIVOV I SHLIFOVANIA) * the whole document * ---	1-32	
D,A	US-A-3 918 219 (R.H. WENTORF, JR. ET AL) * the whole document * ---	1-32	
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The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 18 AUGUST 1992	Examiner KUEHNE H.C.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	



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EUROPEAN SEARCH REPORT

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The present search report has been drawn up for all claims					
Place of search BERLIN		Date of completion of the search 18 AUGUST 1992	Examiner KUEHNE H. C.		
<table><tr><td>CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</td><td>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document
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